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ABSTRACT

A study examined the impact and cost effectiveness of a principal leadership-development program. The program is based on one-on-one interaction between the participant and a leadership analyst, and it includes the following components: assessment, feedback, and construction of a one-year personal development plan. A survey mailed to 195 Illinois administrators who participated in the program yielded 120 responses, a 62 percent response rate. Respondents' evaluations of the program itself and its impact on them were strongly positive. A utility analysis of program costs and benefits concluded that when program costs are considered within the context of program returns, benefits far outweigh costs. Five tables are included. (Contains 15 references.) (LMI)

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ED 360 694

Examining the Impact and Cost Effectiveness of a Model Inservice Program for Developing Effective Instructional Leaders

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Examining the Impact and Cost Effectiveness of a Model Inservice Program for Developing Effective Instructional Leaders

When organizations are in the process of change, the importance of leadership becomes even more critical. Rudderless ships will continue to float if the waves don't get too high. But rudderless ships cannot maintain a steady course and are unlikely to reach predictable destinations. External factors shape their destiny.

Schools now find themselves in a time of great change. Critics and supporters find themselves unanimously calling for even greater changes to repair a system than no longer appears able to meet the challenge of a rapidly shrinking world. Because education is intimately linked with such broad issues as economic viability, cultural identity, and political influence, educational quality is a fundamental national concern.

The importance of leadership for the schools became increasingly clear when studies of effective schools found that the role of the principal in these schools was a critical factor in their success. This discovery led to a comprehensive examination of the nature of school leadership and the qualities that define successful school leaders.

Within the behavioral repertoire of successful school principals, five broad dimensions could be discerned: defining mission, managing curriculum and instruction, supervising and supporting teaching, monitoring student progress, and promoting instructional climate. These core dimensions formed a theoretical foundation for an empirical line of investigation into the nature and impact of school leadership that has been systematically pursued since 1985 (Krug, 1989; 1992; In press; Krug, Ahadi, & Scott, 1991; Maehr, 1991; Maehr & Fyans, 1989; Maehr, Midgley, & Urdan, 1991; Maehr, Smith, & Midgley, 1990).

One of the most important conclusions to emerge from this research is that precisely what the leader does appears to be somewhat less important than why the leader acts. That is, the essential differences between effective instructional leaders and others are less easily discerned in activities, behaviors, or actions than in the leader's interpretations of those activities, behaviors, and actions. Most principals' days are very much the same: meetings with teachers, students, and parents; phone calls; classroom observation; administrative meetings. Each situation represents an opportunity for providing instructional leadership. Principals who reflect on these opportunities are more likely to seize the leadership moment. For example, the

principal who is able to discuss student discipline within the context of the school's educational mission is more likely to create similar linkages within the minds of the students, teachers, and parents as well.

One continuing line of inquiry within the broader research program has been the issue of developing more effective school leaders. The primary focus of this program has been on inservice rather than preservice training. The reason for this was simply that many administrators are called to the instructional leadership role long after preservice training is complete. Additionally, calls for changes in the organizational structure of schools require many incumbents to reexamine their role within institutions they have administered for many years. A "model" development program was designed to incorporate and further test the proposition that individual belief systems represent a useful framework for implementing change.

Description of the Principal Leadership Development Program

The model inservice development program combines three key elements-assessment, feedback, and planning-operationalized in a detailed agenda of specific activities over a period of time, typically an academic year. The long-term nature of the program reflects a belief that significant change requires time and commitment. The program involves one-on-one interaction between the participant and a "leadership analyst." This term evolved to describe people who had been specially trained to interpret the assessment results in terms of leadership development activities. The role is similar to that of a mentor and the people who serve as leadership analysts usually have extensive experience upon which the participant can draw. However, there is a stronger analytic focus in this program that the title is intended to convey.

Self-assessment represents the first step in the development program. Participants complete a set of questionnaires designed to measure the five core leadership dimensions and a series of motivational and contextual dimensions within which the leadership information can be more richly interpreted. The psychometric quality of these instruments has been established and empirical research has validated these self-report dimensions against teacher ratings (Ahadi, Scott, & Krug, 1990). Normative data from a variety of sources allows results to be interpreted across a variety of contexts.

On-site observation by the leadership analyst provides a second avenue for cross-validating self-assessments. Through a structured observation process, leadership analysts become aware

of participants' unique situations and special elements that need to be considered in tailoring development objectives. During a typical on-site visit, leadership analysts complete four activities: (1) observing a group meeting with the administrator and staff to evaluate patterns of interaction particularly relevant to instructional leadership behavior; (2) observing the administrator during a teacher post-observation conference; (3) conducting structured interviews with staff and students; (4) reviewing pertinent documents (memos, letters, parent information bulletins, newsletters) that provide a written record of instructional leadership attitudes and behavior. Although described as a visit, the on-site component usually requires more than one appearance.

Pope (1992) recently suggested that feedback may be the most neglected aspect of assessment. Although great advances have been made in developing interpretive paradigms and materials that help test takers understand the significance of a set of scores, the interactive feedback process goes far beyond understanding test scores. The purpose of the assessment is to provide participants with a chance to evaluate their leadership skills, certain personal characteristics that relate to how they implement those skills, and the context within which those skills are exercised. The purpose of feedback is not only to ensure that participants "understand the numbers," but also to help participants begin to translate the numbers into action steps. For example, a participant who is comparatively weak in the area of managing curriculum needs to understand that finding both in a normative context and in a personal context. Two people who both fall at the 30th percentile, say, may be led to two very different conclusions by someone skilled in the feedback process. For some, curriculum management may be of lower priority because an extensive staff infrastructure supports these activities. For others, when the significance of curriculum development and articulation is appropriately explored and understood through supportive, informative feedback, this may become a high priority for personal development activities.

From the outset, the primary objective of the assessment and feedback activities is the construction of a one-year personal development plan focused on the five core leadership dimensions. That is, all the program activities lead to an action plan that will immerse the participant in a second year of personal growth activities.

The time demand on both participants and leadership analysts is heavy. The typical leadership analyst spends 25 or more hours in direct contact with the participant. Note that this represents the amount of time spent in direct contact only. It does not include preparation time. Participants, on average, devote 2-3 times as many hours to the program.

The implementation of this model instructional leadership development program on a statewide basis by the Illinois State Board of Education (ISBE) provided an ideal context within which to study and refine the basic model. The program was first offered in 1988 through the ISBE's Illinois Administrators' Academy, which provides continuing professional education to public school administrators throughout the state.

Within the first few months of operation, the demand for the program quickly exceeded initial expectations. In many regions a waiting list soon developed. Part of this success lies in the unique, one-on-one nature of the program and the dedication and commitment of those who serve as leadership analysts. For many building administrators, regular access to such skilled colleagues, advisors, or mentors helped alleviate the sense of isolation so many principals regularly experience.

Since that time we have had several opportunities to evaluate various elements of the program. In one study, for example, we provided leadership analysts with diaries in order to maintain detailed records of their progress with participants throughout the program. In a second study, we conducted both structured group interviews and a mail survey of participants and leadership analysts. The following comment from one leadership analyst typified the general reaction that was evident from the diaries, interviews, and surveys:

> *The participant was very pleased with the whole process. He expressed his feelings about this several times. He felt that the process has made an important difference both to him personally and to the school...I found these schools to be very good to work with and enjoyed the time I spent with them. I also felt I was able to learn from the process.*

Ashby (1991) conducted a formal, qualitative evaluation of the program. She relied upon a series of in-depth interviews with pairs of leadership analysts and program participants. The basic conclusion of her study was that both leadership analysts and participants experienced significant benefits as a result of their participation in the program.

The present study complemented these previous efforts. The specific objectives were: (1) to elicit the reactions of program participants on a broader scale and in a structured way, (2) to assess the impact of the program quantitatively, and (3) to attempt to analyze the cost effectiveness of the program.

Procedures

The Illinois State Board of Education provided a list of 195 administrators who participated in the program during the first two years it operated. A survey instrument, to be described shortly, was sent to each administrator along with a cover letter that described the evaluation study. Prepaid reply envelopes encouraged participation in the study. Subsequently, 120 completed forms representing a response rate of 62% were received and analyzed.

Evaluation Instrument

A structured survey instrument recorded the reactions of program participants. There were three parts to the instrument. Part 1 consisted of a series of questions dealing with demographic characteristics and background information about participants. Part 2 consisted of a series of 15 items from the Instructional Leadership Inventory (ILI: Maehr & Ames, 1988). These items assessed the five core dimensions of instructional leadership: defining mission, managing curriculum, supervising teachers, monitoring student progress, promoting instructional climate. The 15 items were answered on a six-point scale in response to two different prompts. The first was "Before your participation in the program how effectively did you..." The second was "Since your participation in the program how effectively do you...?" "Very Poorly" (1) and "Very Effectively" (6) anchored the ends of the response scale. Part 3 consisted of a series of statements that dealt directly with the design, presentation, and impact of the program. Respondents answers on a five-point scale: "Strongly Disagree," "Disagree," "Uncertain," "Agree," and "Strongly Agree."

The evaluation of the program's impact rests in this study upon the self-reports of program participants. Although many program evaluation studies rely upon self-report data, its credibility has sometimes been questioned. Within the context of determining the impact of continuing education, Grotelueschen (1986) has argued that since observation, reflection, and diagnosis form the foundation for professional judgments, professionals themselves are appropriately qualified to evaluate activities designed to enhance their own development. Although evaluative self-reports of third-grade students about instructional programs may be less than compelling, evaluative self-reports of educational professionals may be taken as reasonably valid indicators of program worth. With respect to the instructional leadership assessment used in this study, accumulated evidence shows that principal self-reports on these dimensions are validated by teacher reports on parallel items (Krug, et al., 1991).

Results

Of those who responded to the survey, 56% were elementary school principals, 7% were middle school principals, and 15% were high school principals. The remaining 22% served in a variety of other administrative positions (e.g., assistant principals, superintendents, curriculum directors). The sample was predominantly (67%) male. The largest group (62%) fell in the 40-49 year age range. Of the rest, 3% were under 30, 12% fell in the 30-39 year range, 20% fell in the 50-59 year range, and 3% were 60 years of age or older. White respondents predominated (87%). In terms of years of administrative experience, 21% had five or less years, 29% had 6-10 years, 28% had 11-15 years, 12% had 16-20 years, and 10% had 20 or more years of experience. With respect to highest level of education completed, slightly more than half (55%) had received a master's degree, another 31% were certified as an educational specialist (6-year program or equivalent), and 14% reported a doctoral degree. More than half (52%) served schools with student populations under 500.

A summary of responses to the 8 items in Part 3 of the survey is shown in Table 1. Results are reported in terms of the percentage of total selecting each response category. Thus, 59.1% of those who answered indicated that they strongly agreed with the statement "The program content was relevant to my work." Overall, 97% of respondents agreed or strongly agreed with that statement. In general, the responses to this section of the survey were very positive.

The instructional leadership items used in this study came from a longer instrument (ILI: Maehr & Ames, 1988) whose reliability and validity has previously been established and documented in a series of studies (Krug, 1989). The decision to use an abbreviated form was made in order to maximize survey returns. Use of the full-length form would have increased the size of the survey instrument beyond manageable proportions.

As a check whether the items operated as they did within the intact instrument, the reliabilities of the abbreviated scales were calculated within the sample of respondents. These results are reported in Table 2. Three sets of values are reports. The first column shows results for the scales based on the "before participation in the program" ratings. The second column shows results based on the "after participation" ratings. Although both sets of values are lower than comparable values for the full-length scales, the reliabilities are respectably high for three-item subscales. The third column of Table 2 shows reliabilities of the difference scores formed by subtracting the "after" ratings from the "before" ratings. As is typical of scores based on the difference between two variables, their reliabilities are lower. However, they are not so low as

to make them useless for purposes of program evaluation. The median reliability across the five scales is .71. A factor analysis of the 15-item sets showed that the reduced item pool still assessed multiple, independent aspects of instructional leadership.

The average pre-program and post-program effectiveness ratings of participants are shown in Table 3. As noted previously, responses were recorded on a six-point scale with "6" meaning "very effectively."

Scale- and item-level "effect" measures were calculated by subtracting the post-program ratings from the pre-program mean rating and dividing by the pre-program standard deviation. These results are reported in Table 4.

As Table 4 shows, participants reported, on average, a gain of .77 standard deviation (SD) units in the area of defining mission as a result of program participation. Similar gains were found in each of the areas. However, the gain in the area of defining mission was the largest. Although the gains were uniformly positive at the aggregate level, there was variation across individual participants. In terms of mission, for example, one participant reported a decline of 1.37 SD units relative to pre-program levels while another participant reported a gain of nearly two SD units.

As noted earlier, survey responses were received from individuals who had participated in the program during the first two years of its implementation. A statistical test to determine whether perceived impact related to recency resulted in a nonsignificant F (1.78, $p > .10$). That is, perceived impact did not appear to be stronger for those who had more recently completed the program. The one-year difference in time of program completion did not differentiate the two groups significantly.

Table 5 presents these perceived program effects in a different way, one that may be more familiar to those who use achievement test results to evaluate longitudinal trends. For this table, the pre-program score distributions on the five instructional leadership dimensions were obtained and the quartile cutoff points, the scores that cut the pre-program score distributions in four equal quarters, were determined. Then the post-program score distributions were evaluated with respect to these cutoffs. If there were no program effects, then one fourth of the post-program scores would fall into each of the pre-program categories. That is, the distribution of post-program scores would be essentially the same as the pre-program score distributions. This is not, however, what appears in Table 5. In the area of defining mission,

for example, 62% of the post-program evaluation scores fall above the point that had determined the top 25% of the pre-program scores. Only 5% of the post-program scores fall in the range defined by the lowest 25% of pre-program scores. Although the effect is greatest for defining mission, a similar pattern holds with respect to the other dimensions.

Utility Analysis

An examination of the results presented so far would suggest that, at least from the participants' perspective, the model program was quite successful. Their evaluations of the program itself and their evaluations of its impact on them as instructional leaders are strongly positive.

The question remains, however, whether this apparent impact, strong as it appears to be, is justifiable in terms of the costs of the program. As noted earlier, one of the most salient features of the program is its individualized nature. Participants work one-on-one with a leadership analyst for extended periods of time. For those who are familiar with more traditional development programs, which are delivered to many participants simultaneously, the costs of such a program may seem enormous.

A sizable body of literature has developed that describes methods by which the effects of psychological interventions, such as the model development program, on performance and productivity can be quantified and expressed in terms of their dollar impact. That is, these methods permit the results of interventions to be expressed on the same scale used to measure the costs of these interventions. Thus, the costs and benefits can be directly compared.

Schmidt, Hunter and Pearlman (1982) have shown that the return, in dollar terms, of an intervention can be expressed as follows:

$$U = d_t SD_y T . \qquad (1)$$

In this equation, U is the return on or utility of the intervention. d_t is the difference in job performance in true score standard deviation units. SD_y is the standard deviation of job performance in dollars. T is the average duration of the intervention.

The difference in job performance, d_t, is a measure of how much better participants in the intervention perform after the intervention relative to their performance before the intervention.

If the intervention involved the acquisition or development of a straightforward skill, such as typing, then the performance measure could be obtained directly. That is, the average typing speed of participants after the typing program (adjusted for errors) would be subtracted from the average pre-program speed and divided by the pre-program standard deviation in typing speed. With more complex interventions, performance improvements are not as directly measurable.

The self-reports of participants represent one type of evaluation data that can be used to estimate d_t. If we accept their judgments as reasonably accurate, the values in Table 4 lead, by averaging across leadership areas, to a value of .64 for d_t. Hunter and Schmidt (1983) cite an unpublished review by Asher and Sciarrino which concluded that the d_t value for a typical training program can be very conservatively estimated as .40. Although somewhat higher than that reported by Hunter and Schmidt, the value for d_t proposed here seems reasonable considering their comment that .40 was a "very conservative" estimate.

Formula 1 requires that the difference in job performance be expressed in terms of standard deviation units. It also requires that it be expressed in terms of true score standard deviation units. That is, the effect size must be corrected for the fact that it fallible (i.e., unreliable) measures tend to reduce true effect sizes. The median reliability reported in Table 2 can be used to transform the measured effect size into true score effects. That is, the obtained d_t (.64) is divided by the square root of the median reliability (.71). This leads to a final estimate of .76 for d_t.

The standard deviation of job performance in dollars, SD_y, has traditionally been the most difficult term in utility formulas to estimate. Hunter and Schmidt (1983) have shown that for the typical job in the U. S. economy, the standard deviation of output in dollar terms is approximately equal to 40% of the average annual wage. Their arguments are too extensive to summarize here and the interested reader must refer to the original sources for the derivation of this calculation. In terms of the present study, figures for the average principal's salary were $58,547 for the 1990-91 school year (National Association of Secondary School Principals, 1991). This leads to a value of $23,419 for SD_y.

T, the average duration of the intervention, is also a difficult parameter to estimate for psychological intervention programs. Hunter and Schmidt (1983) have suggested that the effects of interventions probably decline gradually with time and that the duration of the period of decline divided by 2 should produce an acceptable estimate of T. The data in this study

suggested that there was no significant difference in perceived program impact between two groups of participants who completed the program one year apart. However, it would not be reasonable to conclude from this that the effects do not decline. Perhaps the better approach is to conclude that the period of decline is no less than two years. Therefore, T, the average duration of the intervention, is at least 1. Based on the data that are available in the present study, this would lead to a very conservative estimate.

When these values are inserted in the formula, the result is as follows:

$$U = .76 \times \$23,419 \times 1 \ .$$

That is, increased productivity (in dollars) attributable to the model program is $17,788 per participant. The accuracy of this estimate depends, of course, upon the validity of the assumptions made in calculating each equation parameter. Since Hunter and Schmidt's arguments for calculating Sd_y as they do appear very reasonable, the two most unstable terms are probably d_t and T.

With regard to the T parameter, it would be difficult to select a more conservative value based on the available data. Although roughly half the participants completed the program one year before the others, there were no statistically significant differences evident in their evaluations of program impact.

Since the estimate of d_t here is based on self-report, the argument could be made that it may be somewhat inflated. That is, participants may justify their participation in such a program by perceiving that the impact was much greater than it really was. On the other hand, Hunter and Schmidt suggest that .40 represents a very conservative (uncorrected) estimate of d_t for "typical" training programs. The model program is anything but typical in terms of its design, delivery, and level of commitment. Consequently, an uncorrected estimate of .64 for d_t does not seem terribly out of line. The net effect of correcting the obtained d_t for unreliability is to increase it. Consequently, a more conservative approach might be to use the uncorrected value. This still leads to a value for U of $14,988. Consequently, it seems reasonable to conclude that the increased productivity (in dollars) attributable to the model program might be expected to fall in the range of $14,988-17,788 per participant.

From a cost-benefit perspective, the next step would be to subtract the costs of program participation from U to see the net effect of the program (i.e., impact adjusted for cost of

intervention). As it was implemented in Illinois, these costs would be difficult to calculate directly. Although most leadership analysts are paid an honorarium for their participation, the fee is negligible. The costs of training leadership analysts, although initially significant, quickly diminish when they are amortized across the hundreds of individuals who have been served by the program during its first four years.

An alternative to trying to estimate actual costs would be to consider what kinds of program costs could be justified on the basis of a return of $14,988-17,788 per participant. The obvious answer is that these kinds of returns justify relatively high implementation and operating costs, costs on the order of 15-25 times higher than were actually incurred in the Illinois experience.

Summary

One conclusion we have reached over several years of systematic inquiry into the nature and development of school leadership is that an instructional leadership development program, grounded in sound assessment practices, with development plans based on individual needs, and change strategies tied to individual strengths provides a solid model for effective training of school leaders. The assessment framework provides a foundation of objective data on which to develop realistic plans for change. However, although it is necessary for successful change, the assessment framework is not sufficient to ensure the success of such a program. The long-term involvement of a skilled colleague, who is aware of the participant's unique situation and is committed to helping, represents a vital element.

When program costs are considered within the context of program returns, the conclusion is that benefits far outweigh costs. Instructional leadership is what principals provide to the schools they serve. The model program appears to develop those leadership skills in an effective way that easily justifies program costs.

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Table 1

Summary of Participant Responses to General Program Evaluation Questions

	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
The program content was relevant to my work	0.9	1.7	.9	37.4	59.1
I feel that I learned much as a result of the program	0.0	5.4	7.1	45.5	42.0
The amount of information I received was manageable	0.0	2.6	4.4	52.6	40.4
The material used in the program was understandable and helpful	0.0	5.3	6.2	50.4	38.1
The leadership analyst was responsive to my concerns	0.9	0.0	3.5	26.3	69.3
I feel that I benefited from this program	2.7	0.9	3.6	36.6	56.3
I feel more confident in my abilities after participating in this program	0.9	1.8	5.4	38.7	53.2
I plan to take specific actions based upon what I learned in the program	0.9	0.9	2.7	37.5	58.0

Table 2

Reliabilities of the Abbreviated Leadership Scales

	Before	After	Difference
Defining Mission	.73	.80	.54
Managing Curriculum	.83	.81	.74
Supervising Teaching	.77	.77	.51
Monitoring Progress	.83	.84	.71
Promoting Instructional Climate	.77	.75	.75

Table 3

Average Pre-Program and Post-Program Ratings of Participants on Each of the Instructional Leadership Items

Item	Before	After
Define and communicate school goals	3.70	4.65
Deal with curriculum issues	4.03	4.69
Help teachers improve student achievement	3.91	4.57
Monitor students' progress	4.04	4.63
Involve others in school-related decisions	4.22	4.97
Create excitement about teaching and learning	4.10	4.67
Contribute to curriculum improvement	4.19	4.95
Supervise teachers	4.49	4.91
Review students' performance	4.22	4.80
Reduce conflict	4.34	4.79
Communicate a sense of mission to faculty and students	3.75	4.83
Find/allocate curriculum resources	4.17	4.73
Provide feedback to teachers	4.28	4.89
Communicate expectations for student performance	4.17	4.82
Reinforce the work of students and teachers	4.25	4.92

Table 4

Instructional Leadership Effect Measures

SCALE/Item	Mean	SD	Minimum	Maximum
DEFINING MISSION	.77	.68	- 1.37	1.96
Communicate a sense of mission	.90	.75	- 1.45	1.86
Define and communicate school goals	.85	.80	- 1.53	2.07
Create excitement about teaching/learning	.58	.88	- 1.12	1.94
MANAGING CURRICULUM	.63	.68	- 1.70	1.76
Contribute to curriculum improvement	.73	.84	- 2.11	1.74
Deal with curriculum issues	.61	.77	- 1.88	1.82
Find/allocate curriculum resources	.53	.82	- 1.10	1.73
SUPERVISING TEACHING	.59	.69	- 1.26	1.83
Help teachers improve student achieve	.71	.83	- .97	2.22
Provide feedback to teachers	.62	.82	- 1.29	1.74
Supervise teachers	.42	.86	- 1.51	1.53
MONITORING PROGRESS	.60	.71	- 1.79	1.85
Communicate performance expectations	.69	.86	- 1.24	1.95
Review students' performance	.57	.79	- 2.18	1.75
Monitor students' performance	.56	.79	- 1.94	1.87
PROMOTING INSTRUCTIONAL CLIMATE	.59	.63	- .87	1.65
Involve others in school decisions	.69	.68	- 1.12	1.63
Reinforce the work of students/teachers	.68	.80	- 1.28	1.79
Reduce conflict	.42	.83	- 2.17	1.54

Table 5

Perceived Gains in Each Instructional Leadership Area Relative to Pre-Program Participation Effectiveness

	Defining Mission	Managing Curriculum	Supervising Teaching	Monitoring Progress	Promoting Climate
Q4	62	28	46	53	31
Q3	25	54	23	26	41
Q2	8	12	24	12	23
Q1	5	6	7	9	5